

## Appendix K: Carry-Over of Stored Bulbs and Bulb Flow Transition

The following outlines the change in method used by Commission Staff to calculate and credit stored bulbs in 2010-2012 and the resulting distribution of 2010-2012 CFL savings credit between the 2010-2012 and 2013-2014 portfolios.

Because light bulbs are often bought by customers in bulk and stored for later use, beginning with the 2006-2008 portfolio and continuing with the 2009 bridge year, a portion of program bulbs were credited forward to reflect how this resource appears as “installed and operating” as a grid resource .

In light of the complexities associated with modeling and tracking the vintage of and savings credit for stored lamps (an exercise that relies on assumptions about program market share and burnout/early replacement rates that is not grounded in reliable data), as well as the relatively short storage period observed in the field for stored bulbs, the 2010-2012 impact study evaluators have recommended a transition in accounting to credit program CFL bulb savings in the year in which the bulbs are sold. This approach would eliminate the need to carry over savings from one program year or cycle into subsequent programs

and would also allow each program year and cycle to be evaluated independently.

Commission staff has adopted this proposal. However, given the fact that the utilities had managed their 2010-2012 and 2013-2014 portfolios under the assumption that stored bulb savings would be carried into subsequent portfolios, staff has provided the utilities with some flexibility for applying a portion of the 2010-2012 upstream CFL savings that would have been carried over into the 2013-2014 portfolio to their 2010-2012 or 2013-2014 savings goals. This is of particular concern for the two combined electric and gas utilities, since CFL energy savings create negative therm savings through interactive effects that can adversely impact their total therm savings.

This appendix describes the transition path proposed by staff including the rationale behind its design and the amount of savings that would have been carried over until 2013-2014 under the previous approach that are now being credited to the 2010-2012 and 2013-2014 portfolios, based on each utility's “stored bulb savings transition election.”

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### Magnitude of Stored Bulbs

Table K-I uses the spreadsheet posted to the Public Documents Area with the final WO 28 California Upstream and Residential Lighting Impact Evaluation Report to calculate the amount of kWh, kW, and

therms savings come from stored bulbs being credited in 2010-2012 that in the previous accounting approach would have been carried over and credited in subsequent years were developed using Column H represents the amount of bulbs that are being credited in 2010-2012.

**Table K-I - Magnitude of Stored Bulbs**

2010-2012 Upstream Lighting Impact Report	Ex ante IR	Ex Post IR	Sum of Qty	Sum of Combined evaluated Gross kWh Interactive Effects	Sum of Combined evaluated Gross kW Interactive Effects	Sum of Combined evaluated Gross therm Interactive Effects	Total Amount of Bulbs Credited in 2010-2012*	gross kWh savings	gross kW savings	gross therm savings
PGE	0.76	0.97	22,778,480	799,065,314	121,677	(14,936,476)	5,466,835	172,993,522	26,343	(3,233,670)
Indoor CFL A lamp	0.76	0.97	3,826,344	125,213,130	17,354	(2,501,103)	918,323	27,107,997	3,757	(541,476)
Indoor CFL Basic	0.76	0.97	15,862,734	548,006,303	86,196	(9,971,811)	3,807,056	118,640,540	18,661	(2,158,846)
Indoor CFL Reflector	0.76	0.97	3,089,402	125,845,881	18,127	(2,463,562)	741,456	27,244,985	3,924	(533,348)
SCE	0.77	0.97	39,806,436	1,610,930,070	248,996	(22,492,563)	9,155,480	332,150,530	51,339	(4,637,642)
Indoor CFL A lamp	0.77	0.97	6,775,163	270,468,040	37,681	(3,823,066)	1,558,287	55,766,606	7,769	(788,261)
Indoor CFL Basic	0.77	0.97	24,663,864	991,239,682	160,091	(13,832,918)	5,672,689	204,379,316	33,009	(2,852,148)
Indoor CFL Globe	0.77	0.97	1,294,388	34,857,381	5,875	(428,526)	297,709	7,187,089	1,211	(88,356)
Indoor CFL Reflector	0.77	0.97	7,073,021	314,364,967	45,349	(4,408,053)	1,626,795	64,817,519	9,350	(908,877)
SDGE	0.76	0.97	7,365,070	230,790,015	31,781	(2,898,082)	1,767,617	49,964,849	6,880	(627,420)
Indoor CFL A lamp	0.76	0.97	475,819	14,235,134	1,945	(191,507)	114,197	3,081,833	421	(41,460)
Indoor CFL Basic	0.76	0.97	6,100,808	194,346,337	26,751	(2,425,338)	1,464,194	42,074,980	5,791	(525,073)
Indoor CFL Globe	0.76	0.97	128,131	2,358,285	382	(27,761)	30,751	510,557	83	(6,010)
Indoor CFL Reflector	0.76	0.97	660,312	19,850,260	2,703	(253,476)	158,475	4,297,479	585	(54,876)
<b>Grand Total</b>	<b>0.76</b>	<b>0.97</b>	<b>69,949,986</b>	<b>2,640,785,399</b>	<b>402,454</b>	<b>(40,327,121)</b>	<b>16,787,997</b>	<b>571,716,426</b>	<b>87,129</b>	<b>(8,730,614)</b>

\* Could have been credited in subsequent years

## Bulb Flow Accounting Transition from 2010-2012 to 2013-2014

To develop a transition from our previous policy (carrying-over of stored bulb savings into future portfolios) to a policy in which savings are credited to the utility in the year the bulbs are sold, staff employed a four step process.

*Step 1: Determine a cap for the total amount of energy savings from residential upstream CFLs that could be claimed for 2013-2014 as a percent of the total 2013-2014 portfolio energy goal for each IOU.*

Staff selected a cap of 16%, which represents all of the market potential identified in the potential study

for CFLs in the most recent Potential Study<sup>1</sup> (12% of total energy goals) plus an additional 4% of total energy goals for bulbs sold in 2013-2014 with the expectation that they would be stored for use in future years.

*Step 2: Sum the amount of 2013-2014 savings from CFLs that were already claimed by each IOU.*

Table K-2 compares the first six quarters of tracking data from the 2013-2014 upstream lighting program activity for residential CFL A-lamps, Basic, and Reflectors with the total amount of potential for these measures identified in the most recent Potential Study. (Note that SCE and SDGE are already claiming more CFLs than the estimated available potential.)

<sup>1</sup> <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Energy+Efficiency+Goals+and+Potential+Studies.htm>

**Table K-2** -2013-2014 Claims compared to Potential

	<b>13-14 Claims GWh</b>	<b>13-14 Potential GWh</b>	<b>Claims &gt; Potential</b>
PGE (A-lamp, Basic, and Reflector CFLs)	44.87	115	No
SCE (A-lamp, Basic, and Reflector CFLs)	141.41	94	Yes
SDGE (A-lamp, Basic, and Reflector CFLs)	44.48	29	Yes

*Step 3: Calculate the remaining “headroom” of 2013-14 savings that could come from 2010-2012 carry over CFLs by subtracting the total 2013-2014 savings developed in Step 2 from the cap developed in Step 1.*

A comparison of the 2013-2014 claims as a percent of energy goals adopted in D.12-05-015 indicates that CFL claims for 2013-2014 already represent approximately 4% of PG&E's goals, 11% of SCE's goals, and 14% of SDG&E's goals based on ex ante 2013-2014 parameters.

Subtracting these 2013-2014 claims from the cap of 16% of total energy goals, Columns C and D in Table 3 represent the maximum GWh and percentage of 2013-2014 goal savings that 2010-2012 carry-over bulbs can contribute to each utility's 2013-2014 portfolios to reach the proposed 16% of goal total CFL cap (again, based on 2013-2014 ex ante parameters – the portion of 2013-2014 goals that will be represented by CFL bulbs in an evaluated basis will not be determined until 2013-2014 impact studies have been completed). Column E shows how much this amount represents compared with the total amount of carry

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over bulbs available from 2010-2012 based on the previous carry-over model.

**Table K-3** - Maximum Amount of Carry Over

	<b>13-14 Tracking as a percent of 13-14 goals</b>	<b>If IOU are allowed to claim at most 16% of goals from current CFL + carry over, this amount would come from carry over from 2010-2012 (GWh)</b>	<b>Max percent of goals to come from carry over</b>	<b>Percent of carry over total</b>
PGE	4%	146	12%	84%
SCE	11%	73	5%	22%
SDGE	14%	6	2%	13%

*Step 4: Allow the IOUs to select the number of 2010-2012 bulbs they elect to carry over into 2013-2014 from between zero (all savings from 2010-2012 bulbs are credited in 2010-2012) to the maximum identified in Step 3.*

[This section, which will provide and summarize a table with total 2010-2012 evaluated savings, will be developed after IOUs have commented on the draft document / provided their respective elections of the percentage of their 2013-2014 savings goals that will be met with 2010-2012 carry over bulbs up to their respective caps.]

**Table K-4** - 2010-2012 Evaluated Savings

<b>2010-2012 Upstream Lighting Impact Report</b>	<b>Ex ante IR</b>	<b>Ex Post IR</b>	<b>Sum of Qty</b>	<b>Sum of Combined evaluated Gross kWh Interactive Effects</b>	<b>Sum of Combined evaluated Gross kW Interactive Effects</b>
<b>PGE</b>	<b>0.76</b>	<b>0.97</b>	<b>22,778,480</b>	<b>799,065,314</b>	<b>121,677</b>
PGE (w/Carry over removed)			18,545,480	653,071,350	99,268
Lighting Indoor CFL A lamp	0.76	0.97	3,826,344	125,213,130	17,354
Indoor CFL A lamp removed			560,000	17,697,125	2,441
Lighting Indoor CFL Basic	0.76	0.97	15,862,734	548,006,303	86,196
Indoor CFL Basic removed			3,000,000	100,796,099	16,009
Lighting Indoor CFL Reflector	0.76	0.97	3,089,402	125,845,881	18,127
Indoor CFL Reflector removed			673,000	27,500,740	3,959
<b>TOTAL REMOVED for PGE</b>			<b>4,233,000</b>	<b>145,993,964</b>	<b>22,409</b>
<b>SCE</b>	<b>0.77</b>	<b>0.97</b>	<b>39,806,436</b>	<b>1,610,930,070</b>	<b>248,996</b>
SCE (w/Carry over removed)			37,974,436	1,537,926,036	237,597
Lighting Indoor CFL A lamp	0.77	0.97	6,775,163	270,468,040	37,681
Indoor CFL A lamp removed			117,000	4,574,313	650
Lighting Indoor CFL Basic	0.77	0.97	24,663,864	991,239,682	160,091
Indoor CFL Basic removed			1,600,000	63,356,302	10,018
Lighting Indoor CFL Globe	0.77	0.97	1,294,388	34,857,381	5,875
Lighting Indoor CFL Reflector	0.77	0.97	7,073,021	314,364,967	45,349
Indoor CFL Reflector removed			115,000	5,073,419	730
<b>TOTAL REMOVED for SCE</b>			<b>1,832,000</b>	<b>73,004,034</b>	<b>11,399</b>
<b>SDGE</b>	<b>0.76</b>	<b>0.97</b>	<b>7,365,070</b>	<b>230,790,015</b>	<b>31,781</b>
SDGE (w/Carry over removed)			7,155,070	224,393,945	30,902
Lighting Indoor CFL A lamp	0.76	0.97	475,819	14,235,134	1,945
Indoor CFL A lamp removed			50,000	1,461,811	200
Lighting Indoor CFL Basic	0.76	0.97	6,100,808	194,346,337	26,751
Indoor CFL Basic removed			110,000	3,440,359	475
Lighting Indoor CFL Globe	0.76	0.97	128,131	2,358,285	382
Lighting Indoor CFL Reflector	0.76	0.97	660,312	19,850,260	2,703
Indoor CFL Reflector removed			50,000	1,493,901	203
<b>TOTAL REMOVED for SDGE</b>			<b>210,000</b>	<b>6,396,070</b>	<b>879</b>
Grand Total	0.76	0.97	69,949,986	2,640,785,399	402,454
<b>TOTAL REMOVED STATEWIDE</b>			<b>6,275,000</b>	<b>225,394,068</b>	<b>34,686</b>
Grand total (with Carry-over removed)			63,674,986	2,415,391,331	367,768

